Registration No: | | | | | | | | | | |

Total Number of Pages: 4

MBA

15 MNG 101

FIRST SEMESTER REGULAR EXAMINATION 2015-16
STATISTICS AND DECISION SCIENCE

BRANCH : MBA

Time: 3 Hours

Max marks: 70

Q.CODE: T798

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q.1 Answer the following questions: **(10x2)**

a) If BCA, then the Probability of P(A/B) is _____

b) For a random variable x, if E(x) = 3, then the value of E(3x+4) is _____

c) If correlation Coefficient 'r' between x and y is – 0.6, then 'r' between x and -y is _____

d) If Lambada = mean arrival time = 10 customers per hour and Meu = mean service time = 20 customers per hour, then Probability that service facility is idle is _____

e) If S.D. of x = 3, then variance of (3x-1) is _____

f) The strategy that is taken by a player ignoring the strategy taken by the opponent is known as _____

g) The Probability of moving from one state to another or remain in the same state in a single time period is called _____

h) In a normal distribution, if mean = 10 and S.D. = 4, then points of inflexion of normal curve are _____

i) In a binomial distribution if mean = 4 and variance = 3, then 'p' is _____

j) If Coefficient of Kurtosis (β_2) is 2, then curve is _____ Kurtic.

Q.2 a) If x and y are related by the equation 3x – 2y = 10 and if mode of y is 1, then find mode of x. **(10x2)**

b) Two dice are rolled at once. What is Probability of getting the product 12 ?

c) Three coins are tossed simultaneously, then find expected number of heads.

d) The Coefficient of variability and mean of a distribution are 40 and 10 respectively, then find variance.

e) In a normal distribution if mean and standard deviation are 20.5 and 5, then find quartile deviation.

f) If byx = - 0.6 and bxy = -0.4, then find 'r'.

g) Find standard deviation of observations 5,5,5,9,9,9.

h) If r_{xy} = 0.5, byx = 0.3 and S.D of x = 10, then find S.D. of y.

i) If S.D. of x = 2, S.D. of y = 3 and r_{12} = 0.2, r_{13} = 0.3, r_{23} = 0.4, then find value of $b_{12.3}$.

j) If mean = 8, mode = 6 and S.D. = 2, then find Coefficient of Skewness.

Q.3 a) Estimate the value of X_1, when X_2 = 10, X_3 = 20 from the following : r_{12} = 0.3, r_{13} = 0.2, r_{23} = 0.4, 6_1 = 5, 6_2 = 3, 6_3 = 2. **10**

b) If variance of 1,2,4,5 and x is 2, then find 'x'. **5**

Q.4 a) The overall percentage of failures in a certain examination is 40. What is the probability that out of a group of 6 candidates at least 4 passed the examination ? **8**

b) If a pair of dice is thrown, find the probability that the sum is neither 7 nor 11. **7**

Q.5 Solve the transportation problem by North-West-Corner-Method from the following and test for optimality by 'MODI' method **15**

Warehouses

Plants	**W_1**	**W_2**	**W_3**	**W_4**	**Supply**
P_1	6	2	6	12	120
P_2	4	4	2	4	200
P_3	13	8	7	2	80
Demand	50	80	90	180	

Q.6 Five men are available to do five jobs. From past records, the time (in hours) that each man takes to do a job is known and is given in the following matrix **15**

Men	Jobs				
	1	2	3	4	5
A	2	9	2	7	1
B	6	8	7	6	1
C	4	6	5	3	1
D	4	2	7	3	1
E	5	3	9	5	1

Find the assignment of men to jobs that will minimize the total time taken by Hungarian method.

Q.7 A sample of 100 arrivals of customers in a departmental store is according to the following distribution : **15**

Time between arrival (minutes)	**Frequency**
0.5	12
1.0	21
1.5	36
2.0	19
2.5	7
3.0	5

Simulate for the next 10 **time between arrivals** and **time of arrivals** by using random numbers – 25, 39, 65, 76, 12, 05, 73, 89, 19, 49.

Q.8 Two firms are competing for business under the conditions, so that one firm's gain is another firm's loss. Firm A's pay-off matrix is given below : **15**

		Firm 'B'		
		No. Adv.	**Medium Adv.**	**Heavy Adv.**
Firm 'A'	No. Adv.	10	5	-2
	Medium Adv.	13	12	15
	Heavy Adv.	16	14	10

Suggest optimal strategies for the two firms and the net outcome thereof.

Q.9 Explain the following with examples. **15**

a) Maximin Criterion

b) Minimax Criterion

c) Maximax Criterion

d) Minimin Criterion